APPENDIX J

WETLANDS AND RIPARIAN LANDS AND LARGE WOODY DEBRIS EBAI

Appendix J. Wetlands and Riparian Lands

The large woody debris (LWD) potential index is a quantitative measure of the potential of each of the alternatives to provide woody debris to Class I and Class II streams. The number was determined for each hydrologic unit (HU) and alternative based upon a recruitment potential index (RPI) coefficient and the number of stream miles in each HU. The RPI coefficient was determined for each stream class and for slope based upon silvicultural prescription for the RMZ.

The RPI was calculated as follows. First, the total number of leave trees per acre was determined from different size trees (DBH). The number of trees was based upon a "typical" 60-year-old stand (described in Appendix K of PALCO's SYP) and took into account trees that would be harvested (based on the percentages to be left by DBH class for the established silvicultural prescription targets described in the HCP; see Attachment I-1) that also would function as LWD if recruited; thus, the trees in the RMZ are leave trees. For the purpose of these comparisons, dbh classes 22 to 30, 30 to 40 and 40+ inches were considered capable of functioning as key pieces if recruited in a Class I stream (Figures I-1a and b). These comparisons are based on an average stream width of 16 feet (Bisson et al., 1987). For Class II streams, dbh classes considered capable of functioning as key pieces begin at 14 inches. These comparisons were based on an average stream width of 5 feet.

Next, the cumulative percentage of debris pieces contributed from each harvest management band of the RMZs was computed. McDade et al.'s (1990) assessment of percent contribution of LWD from selected distance categories (see Figure 3.7-2b) was used to determine cumulative percentage of LWD recruitment (using their mature conifer curve). The mature conifer curve was used primarily because most of PALCO's ownership has been harvested and therefore is the baseline for the recruitment potential that exists. The first step of this calculation includes calculating the cumulative percentage of the riparian area by distance from the stream. For example, for Alternative 1 there would be 100 percent of the LWD source trees remaining in the riparian zone along Class I and Class II streams. The assumptions in calculating the 100 percent potential recruitment are: (1) The RMZ is the same length as 1 site-potential tree; (2) there is no-harvest within the RMA, so all trees of appropriate size are recruitable. Regarding recruitment potential among the alternatives, the RMZ was broken down by bands as follows: band 1 (0 to 30 feet) contributes approximately 47 percent of LWD source trees, band 2 (30 to 100 feet) contributes 45 percent, and band 3 contributes 7 percent (see Table I-1).

These percentages and the number of trees were used to determine a relative percent of the LWD recruitment potential based upon the no-harvest buffer width required by literature that provides 100 percent woody debris recruitment. Thus, coefficients used in the analysis are relative to 100 percent protection potential based on the modeled 60-year-old stand.

The coefficients were multiplied by the Class I and Class II stream miles within each HU with full recruitment potential. This number was then normalized to the total number of Class I and Class II stream miles on PALCO and Reserve lands. The results are shown by alternative in Figure 3.7-4 and Table 3.7-12.

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PALCO's Late Seral, High Residual Prescriptions will apply to Class I limited entry bands (LEB) as follows[1]:

- Only single-tree selection will occur within the LEB.
- Harvest will only occur if there is a preharvest conifer basal area of 345-square-foot per acre or greater within the LEB.
- A minimum 300-square-foot post-harvest conifer basal area per acre will be retained within the LEB.
- Basal area measurements will be made for conformance every 200-foot lineal segment of RMZ.
- No more than 40 percent of the conifer basal area may be harvested in a single entry.
- Tree sizes and quantity distribution will be retained as per Table I-5. If replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from higher size classes if such trees are available. The largest trees in the stand must be left, and harvesting must be conducted in a manner that facilitates and expedites development of the stand conditions stated in Table I-5.
- Watershed analysis and/or the PWA road stormproofing protocol will be used to determine the priorities and road stormproofing standards to be used on all roads inside the LEB. Surface area covered in roads will be included in all calculations of basal area.

PALCO's Late Seral Prescriptions will apply to Class I outer band (OB) as follows[2]:

- Only single-tree selection will occur within the OB.
- Harvest will only occur in the OB if there is a preharvest conifer basal area of 276 square feet per acre or greater within the OB on each side of the watercourse.
- A minimum 240-square-foot post-harvest conifer basal area per acre of OB will be retained.
- No more than 40 percent of the conifer basal area may be harvested in a single entry.
- Tree sizes and quantity distribution will be retained as per Table I-5. If replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from higher size classes if such trees are available. The largest trees in the stand must be left, and harvesting must be conducted in a manner that facilitates and expedites development of the stand conditions stated in Table I-5.
- Basal area measurements will be made for conformance no less than every 200-foot lineal segment of RMZ.

[1] LEB—Limited Entry Band
[2] OB—Outer Band

APPENDIX J—ATTACHMENT 1

Table J-1. Tree size and quantity necessary to meet two different residual basal area requirements.

Residual Basal Area Requirement	DBH Class	Basal Area Percent	# of Trees Per Acre*
300 square foot/acre	6 to 12"	5%	34
	12 to 18"	10%	24
	18 to 24"	15%	19
	24 to 30"	15%	11
	30 to 36"	15%	8
	36 to 42"	20%	7
	42 to 48"	20%	5
	over 48"	0%	0
240 square foot/acre	4 to 8"	3%	37
	8 to 12"	4%	18
	12 to 16"	8%	18
	60 to 20"	10%	14
	20 to 24"	12%	11
	24 to 28"	12%	9
	28 to 32"	15%	7
	32 to 36"	18%	7
	36 to 40"	18%	5
	over 40"	0%	0

* Retention requirements are based on basal area not tree number. Number of trees/acre provided for information purposes only.

PALCO's Late Seral Prescriptions will apply to Class II selective entry band (SEBs) as follows[3]:

- Only single-tree selection will occur within the SEB.
- Harvest will only occur in the SEB if there is a preharvest conifer basal area of 276 square feet per acre or greater within the SEB.
- A minimum 240-square-foot post-harvest conifer basal area per acre of SEB will be retained.
- No more than 40 percent of the conifer basal area may be harvested in a single entry.
- Tree sizes and quantity distribution will be retained as per Table I-5. If replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from higher size classes if such trees are available. The largest trees in the stand must be left, and harvesting must be conducted in a manner that facilitates and expedites development of the stand conditions stated in Table I-5.
- Basal area measurements will be made for conformance no less than every 200-foot lineal segment of RMZ.
- Basal area measurements will be made for conformance every 200-foot lineal segment of RMZ.
- There will be a maximum of 1 entry every 20 years.

[3] SEB—Selective Entry Band

Table J-2. Example of number of trees to be left on each side of Class I and II streams per 100 feet of stream length and cumulative percent of recruitable trees, based on a 60-year-old managed stand, by Alternative[1/]

		Band 1 (0-30 ft)	Band 2 (30-100 ft)	Band 3 (100-170 ft)	Total (170 ft)
Class I					
Alt 1	# of Trees	16.0	37.4	37.4	**90.9**
	Cumulative %	48%	45%	7%	**100%**
Alt 2	# of Trees	16.0	25.4	20.1	**61.6**
	Cumulative %	48%	28%	4%	**81%**
Alt 3	# of Trees	16.0	37.4	20.1	**73.6**
	Cumulative %	48%	45%	4%	**97%**
Class II					
Alt 1	# of Trees	16.0	37.4	37.4	**90.9**
	Cumulative %	48%	45%	7%	**100%**
Alt 2&4[2/]	# of Trees	8.6	20.1	0.0	**28.8**
	Cumulative %	30%	29%	0%	**59%**
Alt 2&4[3/]	# of Trees	16.0	20.1	8.6	**44.8**
	Cumulative %	48%	29%	3%	**80%**
Alt 2&4[4/]	# of Trees	8.6	20.1	8.6	**37.4**
	Cumulative %	30%	29%	3%	**62%**
Alt 2&4[5/]	# of Trees	16.0	20.1	0.0	**36.2**
	Cumulative %	48%	29%	0%	**77%**
Alt 3	# of Trees	16.0	31.3	20.1	**67.4**
	Cumulative %	48%	39%	5%	**92%**

1/ See Appendix I text to understand how cumulative percent of recruitable trends was calculated.

2/ First 3 years of the HCP

3/ 47 years of the HCP, outside of the Humbolt WAA, Douglas-fir timber type, and redwood forests with slopes >50% (no harvest in Band 1, 240 sq. ft./ac phba in Band 2 and the first 30 feet of Band 3, no restrictions for the remainder of Band 3)

4/ 47 years of the HCP, outside of the Humbolt WAA, redwood timber types, slopes <50% (240 sq. ft./ac phba in Bands 1, 2, and the first 30 feet of Band 3, no restrictions for the remainder of Band 3)

5/ 47 years of the HCP, within the Humbolt WAA, Douglas-fir and redwood forest timber types, all slopes (Restricted Harvest in Band 1, 240 sq. ft./ac phba in Band 2, no restrictions in Band 3)

Source: Foster Wheeler Environmental Corporation, 1998

Table J-3. Acres of Riparian Harvest Prescriptions by Alternative for PALCO's Ownership and the Reserve

		Alternative 1	Alternative 1[1/]	Alternative 2					
WAA	**Hydrologic Unit**	**A**	**A**	**A**	**B**	**C**	**D**	**E**	**F**
Bear/Mattole River Total	Bear River	4,720	2,507	538	344	1,552	67	617	232
	Mattole Delta	1,005	529	106	87	302	3	128	49
	NF Mattole River	1,329	701	151	75	449	17	200	79
	Upper NF Mattole	2,355	1,251	270	146	797	43	361	113
Bear/Mattole River Total		**9,409**	**4,988**	**1,065**	**652**	**3,100**	**131**	**1,308**	**473**
Eel River	Eel Delta	2,938	1,559	95	202	1,291	11	352	148
	Giants Ave	344	183	8	16	154	1	46	22
	Larabee Creek	4,721	2,517	170	332	2,024	34	569	242
	Lower Eel	9,327	4,821	257	495	4,166	66	1,314	475
	Sequoia	3,301	1,723	111	218	1,399	24	406	171
Eel River Total		**20,631**	**10,803**	**641**	**1,263**	**9,034**	**135**	**2,686**	**1,057**
Humboldt Bay	***Elk River***	4,837	2,560	874	386	1,503	7	1,069	240
	Freshwater Creek	4,512	2,383	535	535	338	1,194	7	861
	Jacoby Creek	84	42	11	11	0	24	2	26
	Other	10	5	1	1	0	2	0	3
	Salmon Creek	990	525	17	17	11	37	0	28
Humboldt Bay Total		**10,433**	**5,515**	**1,438**	**950**	**1,852**	**1,265**	**1,078**	**1,158**
Mad River	Butler Valley	376	192	45	45	9	148	5	65
	Iaqua Buttes	657	354	82	82	43	234	10	87
Mad River Total		**1,033**	**547**	**128**	**128**	**53**	**382**	**15**	**153**
Van Duzen River	Van Duzen WAA	6,792	3,574	488	469	2,728	17	725	351
Van Duzen Total		**6,792**	**3,574**	**488**	**469**	**2,728**	**17**	**725**	**351**
Yager Creek	Lawrence Cr	4,670	2,510	1,165	272	1,496	7	390	207
	Lower Yager	4,246	2,267	1,167	203	1,289	4	352	209
	Middle Yager	875	466	49	113	273	0	55	37
	North Yager	722	390	85	54	244	6	81	38
Yager Creek Total		**10,513**	**5,633**	**2,466**	**643**	**3,302**	**17**	**878**	**490**
Grand Total		**58,811**	**31,060**	**6,226**	**4,105**	**20,070**	**1,948**	**6,689**	**3,683**
RESERVE			0	2,393	0	0	0	0	0

Notes:

A = No Harvest
B = High Residual Prescription
C+D = PALCO Late Seral Prescription
E = EEZ
F = ELZ

[1/] Calculated using no-harvest buffers of 170 feet, 85 feet, and 50 feet for Class I, Class II, and Class III streams, respectively. In addition, marble murrelet residual stands are not specifically known and are not accounted for in these values.

Source: Foster Wheeler Environmental Corporation

Table J-3. Acres of Riparian Harvest Prescriptions by Alternative for PALCO's Ownership and the Reserve

		Alternative 2a						Alternative 3		Alternative 4					
WAA	**Hydrologic Unit**	**A**	**B**	**C**	**D**	**E**	**F**	**A**	**C**	**A**	**B**	**C**	**D**	**E**	**F**
Bear/Mattole River Total	Bear River	538	344	1,552	67	617	232	2,770	431	538	344	1,552	67	617	232
	Mattole Delta	106	87	302	3	128	49	627	288	106	87	302	3	128	49
	NF Mattole River	151	75	449	17	200	79	215	38	151	75	449	17	200	79
	Upper NF Mattole	270	146	797	43	361	113	1,205	110	270	146	797	43	361	113
Bear/Mattole River Total		**1,065**	**652**	**3,100**	**131**	**1,308**	**473**	**4,817**	**866**	**1,065**	**652**	**3,100**	**131**	**1,308**	**473**
Eel River	Eel Delta	95	202	1,291	11	352	148	2,593	1,008	62	127	839	10	235	104
	Giants Ave	8	16	154	1	46	22	341	175	8	16	154	1	46	22
	Larabee Creek	170	332	2,024	34	569	242	2,310	700	170	332	2,024	34	569	242
	Lower Eel	257	495	4,166	66	1,314	475	6,455	2,250	257	495	4,141	66	1,319	479
	Sequoia	111	218	1,399	24	406	171	2,230	579	111	218	1,391	24	407	173
Eel River Total		**641**	**1,263**	**9,034**	**135**	**2,686**	**1,057**	**13,928**	**4,711**	**609**	**1,188**	**8,549**	**135**	**2,575**	**1,020**
Humboldt Bay	***Elk River***	689	312	1,018	6	713	165	4,037	1,404	2	0	6	0	6	2
	Freshwater Creek	535	338	1,194	7	861	199	3,765	1,175	535	338	1,194	7	861	199
	Jacoby Creek	11	0	24	2	26	5	31	10	11	0	24	2	26	5
	Other	1	0	2	0	3	1	2	0	1	0	2	0	2	1
	Salmon Creek	17	11	37	0	28	8	28	1	17	11	37	0	28	8
Humboldt Bay Total		**1,253**	**661**	**2,276**	**14**	**1,631**	**377**	**7,863**	**2,590**	**566**	**349**	**1,263**	**9**	**924**	**215**
Mad River	Butler Valley	45	9	148	5	65	16	329	86	45	9	148	5	65	16
	Iaqua Buttes	82	43	234	10	87	23	546	47	82	43	234	10	87	23
Mad River Total		**128**	**53**	**382**	**15**	**153**	**39**	**875**	**133**	**128**	**53**	**382**	**15**	**153**	**39**
Van Duzen River	Van Duzen WAA	488	469	2,728	17	725	351	4,693	1,177	213	466	2,681	22	725	348
Van Duzen Total		**488**	**469**	**2,728**	**17**	**725**	**351**	**4,693**	**1,177**	**213**	**466**	**2,681**	**22**	**725**	**348**
Yager Creek	Lawrence Cr	1,165	272	1,496	7	390	207	2,308	325	6	12	100	1	28	9
	Lower Yager	1,167	203	1,289	4	352	209	2,281	389	0	0	0	0	0	0
	Middle Yager	49	113	273	0	55	37	195	0	0	0	0	0	0	0
	North Yager	85	54	244	6	81	38	268	0	0	0	0	0	0	0
Yager Creek Total		**2,466**	**643**	**3,302**	**17**	**878**	**490**	**5,052**	**714**	**6**	**12**	**100**	**1**	**28**	**9**
Grand Total		**6,041**	**3,741**	**20,823**	**330**	**7,380**	**2,788**	**37,228**	**10,191**	**2,585**	**2,720**	**16,076**	**313**	**5,713**	**2,103**
RESERVE		1,568	0	0	0	0	0	2,393	0	18,800	0	0	0	0	0

Notes:

A = No Harvest
B = High Residual Prescription
C+D = PALCO Late Seral Prescription
E = EEZ
F = ELZ

[1/] Calculated using no-harvest buffers of 170 feet, 85 feet, and 50 feet for Class I, Class II, and Class III streams, respectively. In addition, marble murrelet residual stands are not specifically known and are not accounted for in these values.

Source: Foster Wheeler Environmental Corporation

Table J-4. Riparian Acres by Seral Stage and Hydrologic Unit for Lands Found within the Reserve by Alternative[1/]

WAA Name	Hydrologic Unit	Grass (G)	Hardwood (H)	Late Seral (L)	Mid-Seral (M)	Forest Openings (O)	Old Growth (OG)	Open Natural (ON)	Young Forest (Y)	Grand Total
Alternatives 2 and 3										
Eel River	Eel Delta	0	0	2	0	0	1	0	7	10
Eel River Total		0	0	2	0	0	1	0	7	10
Humboldt Bay	Elk River	0	0	681	149	12	468	135	92	1537
	Salmon Creek	0	0	42	213	3	431	0	154	843
Humboldt Bay Total		0	0	724	361	15	898	135	246	2380
Yager Creek	Lawrence Creek	0	0	0	3	0	0	0	0	3
Yager Creek Total		0	0	0	3	0	0	0	0	3
Grand Total		**0**	**0**	**726**	**364**	**15**	**899**	**135**	**254**	**2393**
Alternative 2a										
Eel River	Eel Delta	0	0	2	0	0	1	0	7	10
Eel River Total		0	0	2	0	0	1	0	7	10
Humboldt Bay	Elk River	0	0	44	101	12	468	0	88	713
	Salmon Creek	0	0	42	213	3	431	0	154	843
Humboldt Bay Total		0	0	86	313	15	898	0	243	1555
Yager Creek	Lawrence Creek	0	0	0	3	0	0	0	0	3
Yager Creek Total		0	0	0	3	0	0	0	0	3
Grand Total		**0**	**0**	**88**	**316**	**15**	**899**	**0**	**250**	**1568**
Alternative 4										
Eel River	Eel Delta	4	19	590	96	133	1	6	177	1026
Eel River Total		4	19	590	96	133	1	6	177	1026
Humboldt Bay	Elk River	0	48	2709	1725	230	491	131	929	6262
	Other	0	0	0	2	0	0	0	0	2
	Salmon Creek	0	0	42	213	3	431	0	154	843
Humboldt Bay Total		0	48	2751	1940	233	921	131	1083	7107
Van Duzen River	Van Duzen WAA	5	1	223	46	12	0	66	2	355
Van Duzen River Total		5	1	223	46	12	0	66	2	355
Yager Creek	Lawrence Cr	28	1	380	1434	76	390	82	2077	4469
	Lower Yager	2	7	946	1655	33	129	410	1065	4246
	Middle Yager	2	0	50	234	18	148	0	422	875
	North Yager	1	86	12	193	22	42	56	312	722
Yager Creek Total		34	94	1388	3516	149	708	549	3875	10312
Grand Total		**43**	**162**	**4953**	**5598**	**527**	**1630**	**751**	**5138**	**18801**

1/ Alternative 1 does not establish a Reserve.

Table J-5. Current and Projected Seral Stage Acreage in RMZs Under the Alternatives for years 0, 10, 50, and 120[1/,2/]

	PALCO Ownership				Elk River Timber Co. Ownership				Proposed Headwaters or 61,000-acre Reserve				Total			
Habitat Type	**0**	**10**	**50**	**120**	**0**	**10**	**50**	**120**	**0**	**10**	**50**	**120**	**0**	**10**	**50**	**120**
ALTERNATIVE 1																
Old Growth Douglas-fir	1,723	1,649	1,649	1,649	-	-	-	-	-	-	-	-	1,723	1,649	1,649	1,649
Old Growth Redwood	1,521	1,498	1,498	1,498	-	-	-	-	-	-	-	-	1,521	1,498	1,498	1,498
Residual Douglas-fir	1,854	1,595	1,595	1,595	-	-	-	-	-	-	-	-	1,854	1,595	1,595	1,595
Residual Redwood	4,878	4,641	4,641	4,641	-	-	-	-	-	-	-	-	4,878	4,641	4,641	4,641
Late Seral	12,027	12,399	20,429	29,164	1,855	1,924	2,325	2,375	-	-	-	-	13,882	14,323	22,754	31,539
Mid-successional	22,601	22,265	26,200	12,546	441	372	174	124	-	-	-	-	23,042	22,637	26,374	12,670
Young Forest	9,049	11,822	19	-	203	203	-	-	-	-	-	-	9,252	12,025	19	-
Hardwood [3/]	332	261	97	5,036	-	-	-	-	-	-	-	-	332	261	97	5,036
Forest Open	2,149	4	4	4	-	-	-	-	-	-	-	-	2,149	4	4	4
Prairie	589	589	589	589	-	-	-	-	-	-	-	-	589	589	589	589
Non-timber	1,895	1,895	1,895	1,895	204	204	204	204	-	-	-	-	2,099	2,099	2,099	2,099
Total	**58,618**	**58,618**	**58,616**	**58,617**	**2,703**	**2,703**	**2,703**	**2,703**	**-**	**-**	**-**	**-**	**61,321**	**61,321**	**61,319**	**61,320**
ALTERNATIVE 2																
Old Growth Douglas-fir	740	664	296	296	0	0	0	0	68	68	68	68	808	732	364	364
Old Growth Redwood	434	275	275	275	0	0	0	0	406	406	406	406	840	681	681	681
Residual Douglas-fir	881	773	773	389	0	0	0	0	-	-	-	-	881	773	773	389
Residual Redwood	2521	1501	846	846	0	0	0	0	113	113	113	113	2,634	1,614	959	959
Late Seral	6400	6775	11074	19045	0	0	0	0	329	332	408	425	6,729	7,107	11,482	19,470
Mid-successional	10714	11414	12881	5089	0	0	0	0	95	91	112	95	10,809	11,505	12,993	5,184
Young Forest	3791	4926	182	30	0	0	0	0	92	96	-	-	3,883	5,022	182	30
Hardwood	168	59	62	421	0	0	0	0	-	-	-	-	168	59	62	421
Forest Open	741	2	2	2	0	0	0	0	4	-	-	-	745	2	2	2
Prairie	201	201	201	201	0	0	0	0	2	2	2	2	203	203	203	203
Non-timber	1360	1360	1360	1360	0	0	0	0	128	128	128	128	1,488	1,488	1,488	1,488
Total	**27,951**	**27,950**	**27,952**	**27,954**	**0**	**0**	**0**	**0**	**1,237**	**1,236**	**1,237**	**1,237**	**29,188**	**29,186**	**29,189**	**29,191**
ALTERNATIVE 2b																
Old Growth Douglas-fir	740	664	296	261	0	0	0	0	68	68	68	68	808	732	364	329
Old Growth Redwood	434	275	275	275	0	0	0	0	406	406	406	406	840	681	681	681
Residual Douglas-fir	881	773	773	389	0	0	0	0	0	0	0	0	881	773	773	389
Residual Redwood	2521	1501	846	846	0	0	0	0	113	113	113	113	2634	1614	959	959
Late Seral	5845	6201	10347	18258	1855	1924	2325	2375	230	233	308	325	7930	8358	12980	20958
Mid-successional	10558	11276	12788	5104	441	372	174	124	94	90	112	95	11093	11738	13074	5323
Young Forest	3699	4837	199	35	203	203	0	0	92	96	0	0	3994	5136	199	35
Hardwood	168	59	62	421	0	0	0	0	0	0	0	0	168	59	62	421
Forest Open	741	2	2	2	0	0	0	0	4	0	0	0	745	2	2	2
Prairie	201	201	201	201	0	0	0	0	2	2	2	2	203	203	203	203
Non-timber	1305	1305	1305	1305	204	204	204	204	128	128	128	128	1637	1637	1637	1637
Total	**27,093**	**27,094**	**27,094**	**27,097**	**2,703**	**2,703**	**2,703**	**2,703**	**1,137**	**1,136**	**1,137**	**1,137**	**30,933**	**30,933**	**30,934**	**30,937**
ALTERNATIVE 3																
Old Growth Douglas-fir	1,563	1,487	1,487	1,487	-	-	-	-	68	68	68	68	1,631	1,555	1,555	1,555
Old Growth Redwood	784	760	760	760	-	-	-	-	406	406	406	406	1,190	1,166	1,166	1,166
Residual Douglas-fir	1,854	1,595	1,595	1,595	-	-	-	-	-	-	-	-	1,854	1,595	1,595	1,595
Residual Redwood	4,645	4,409	4,409	4,409	-	-	-	-	113	113	113	113	4,758	4,522	4,522	4,522
Late Seral	13,243	13,588	21,710	31,425	-	-	-	-	329	332	408	425	13,572	13,920	22,118	31,850
Mid-successional	22,827	22,517	26,297	12,269	-	-	-	-	95	91	112	95	22,922	22,608	26,409	12,364
Young Forest	8,999	11,759	19	-	-	-	-	-	92	96	-	-	9,091	11,855	19	-
Hardwood [3/]	332	261	100	4,431	-	-	-	-	-	-	-	-	332	261	100	4,431
Forest Open	2,138	4	4	4	-	-	-	-	4	-	-	-	2,142	4	4	4
Prairie	586	586	586	586	-	-	-	-	2	2	2	2	588	588	588	588
Non-timber	1,964	1,964	1,964	1,964	-	-	-	-	128	128	128	128	2,092	2,092	2,092	2,092
Total	**58,935**	**58,930**	**58,931**	**58,930**	**-**	**-**	**-**	**-**	**1,237**	**1,236**	**1,237**	**1,237**	**60,172**	**60,166**	**60,168**	**60,167**
ALTERNATIVE 4																
Old Growth Douglas-fir	667	612	247	247	-	-	-	-	141	141	141	141	808	753	388	388
Old Growth Redwood	74	8	7	7	-	-	-	-	766	766	766	766	840	774	773	773

Table J-5. Current and Projected Seral Stage Acreage in RMZs Under the Alternatives for years 0, 10, 50, and 120[1/,2/]

	PALCO Ownership				Elk River Timber Co. Ownership				Proposed Headwaters or 61,000-acre Reserve				Total			
Habitat Type	**0**	**10**	**50**	**120**	**0**	**10**	**50**	**120**	**0**	**10**	**50**	**120**	**0**	**10**	**50**	**120**
Residual Douglas-fir	832	751	751	368	-	-	-	-	48	48	48	48	880	799	799	416
Residual Redwood	1,244	638	212	212	-	-	-	-	1,391	1,391	1,391	1,391	2,635	2,029	1,603	1,603
Late Seral	4,669	4,990	7,893	13,172	237	256	410	404	1,823	1,885	3,022	4,030	6,729	7,131	11,325	17,606
Mid-successional	8,453	8,841	8,911	3,990	148	129	67	72	2,208	2,204	3,359	2,276	10,809	11,174	12,337	6,338
Young Forest	1,680	2,384	291	4	90	90	-	-	2,112	2,301	-	-	3,882	4,775	291	4
Hardwood	108	57	52	362	-	-	-	-	59	-	10	85	167	57	62	447
Forest Open	637	83	-	-	-	-	-	-	190	-	-	-	827	83	-	-
Prairie	104	104	104	104	-	-	-	-	17	17	17	17	121	121	121	121
Non-timber	1,153	1,153	1,153	1,153	25	25	25	25	310	310	310	310	1,488	1,488	1,488	1,488
Total	**19,621**	**19,621**	**19,621**	**19,619**	**500**	**500**	**502**	**501**	**9,065**	**9,063**	**9,064**	**9,064**	**29,186**	**29,184**	**29,187**	**29,184**

1/ Data derived from Vestra GIS database

2/ Data combines riparian habitat within Class I, II, and III streams

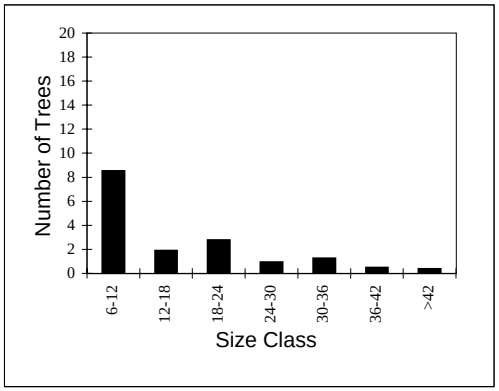
3/ The large increase in hardwood acres shown for year 120 is most likely the result of modeling error.

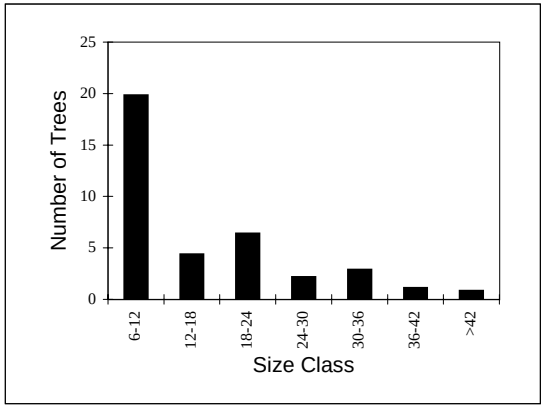
It is reasonable to assume that the majority of this acreage would develop into late seral forest rather than into hardwood forest since they are conifer stands at age 50

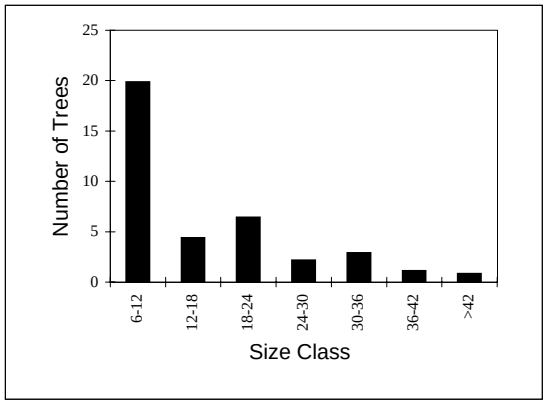
Figure J-1a. Number of Trees in Each Size Class within Bands 1, 2, and 3 Along a 100-foot Length of Class I Streams (Based on 60-Year-Old Managed Stand)

Zone 1 (0 to 30 feet) **Zone 2** (30 to 100 feet) **Zone 3** (100 to 170 feet)[1/]

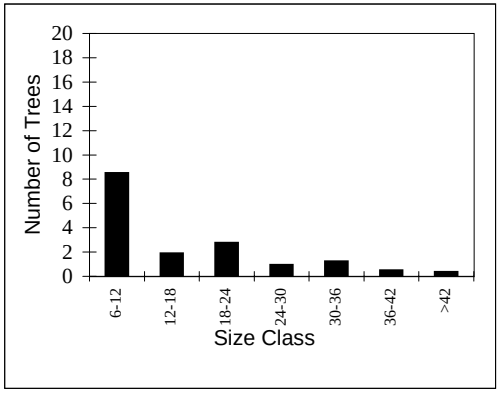
Alternative 1

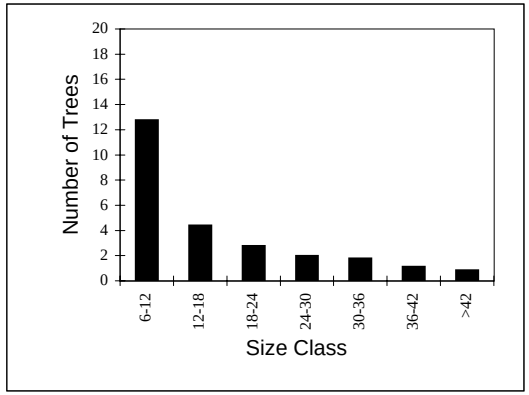






Alternatives 2 and 4





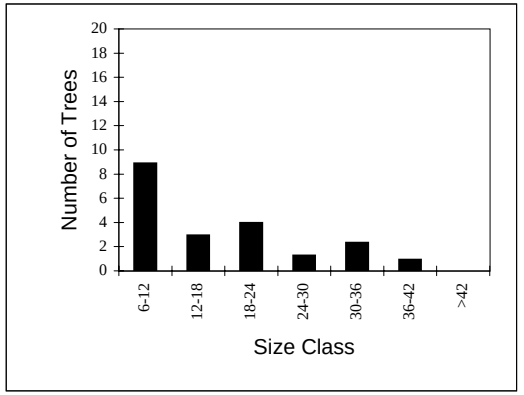
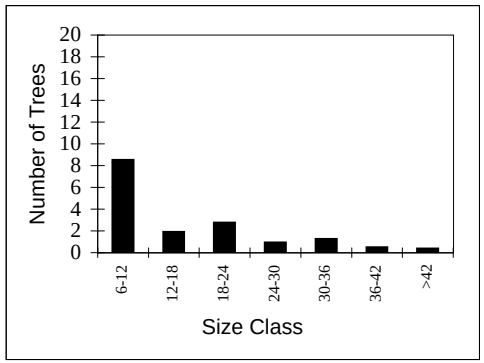
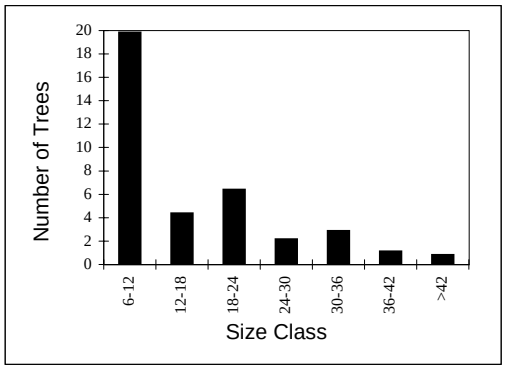


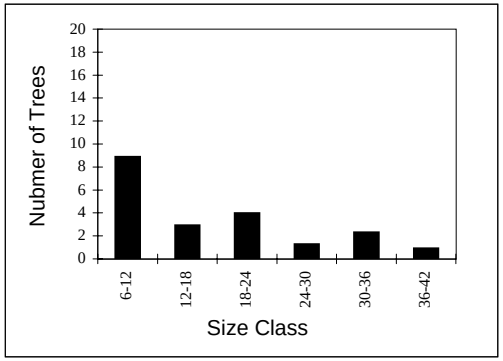
Figure J-1a. Number of Trees in Each Size Class within Bands 1, 2, and 3 Along a 100-foot Length of Class I Streams (Based on 60-Year-Old Managed Stand)

Zone 1 (0 to 30 feet) **Zone 2** (30 to 100 feet) **Zone 3** (100 to 170 feet)[1/]

Alternative 3





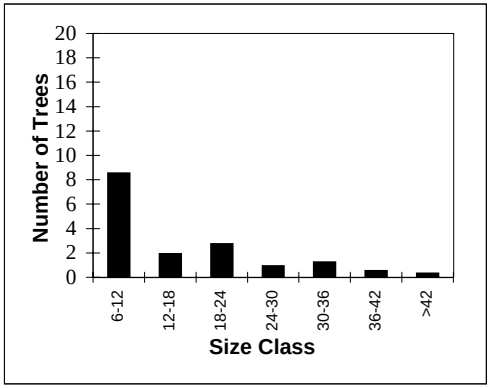


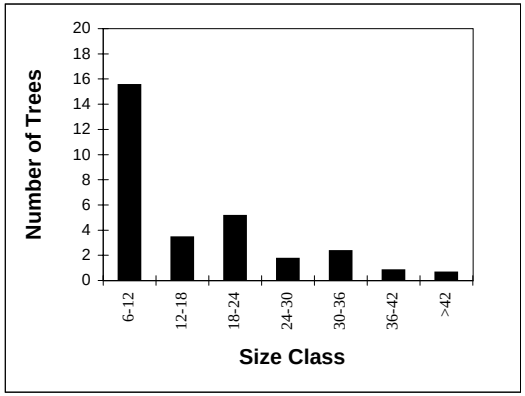
1/ Harvest restrictions extend out to 340 feet under Alternatives 1 and 3.

Figure J-1b. Number of Trees in Each Size Class within Bands 1, 2, and 3 Along a 100-foot Length of Class II Streams (Based on 60-Year-Old Managed Stand)

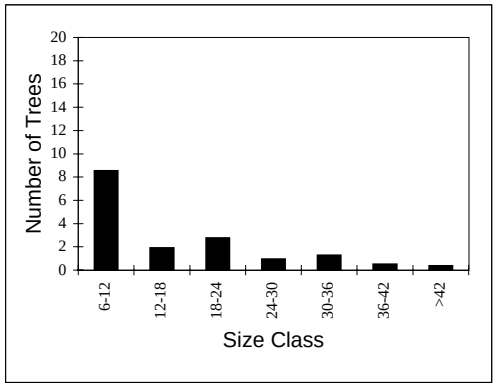
Zone 1 (0 to 30 feet) **Zone 2** (30 to 100 feet) **Zone 3** (100 to 170 feet)

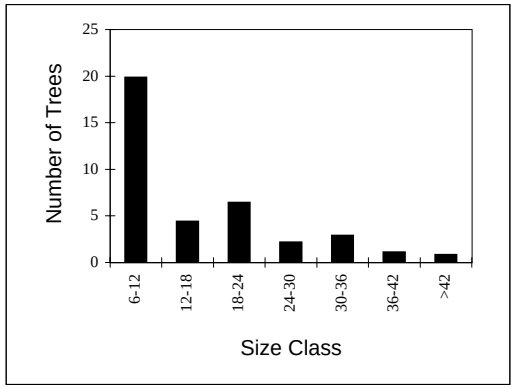
Alternative 1[1/]





Alternative 1[2/]





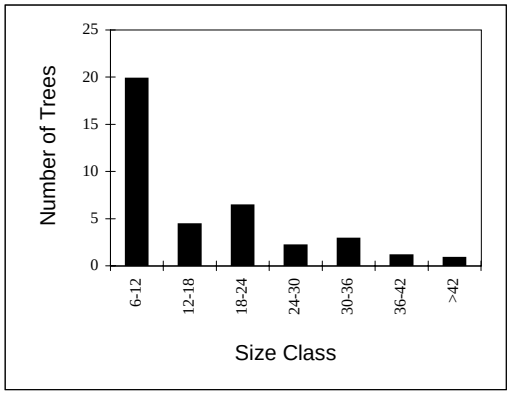


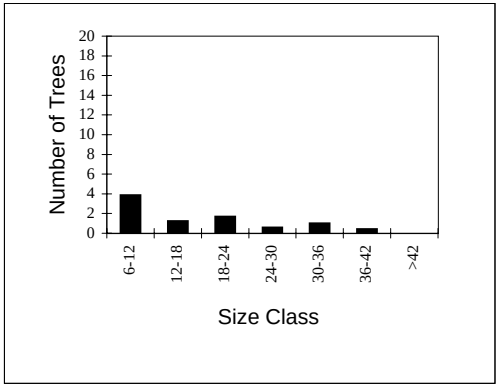
Figure J-1b. Number of Trees in Each Size Class within Bands 1, 2, and 3 Along a 100-foot Length of Class II Streams (Based on 60-Year-Old Managed Stand)

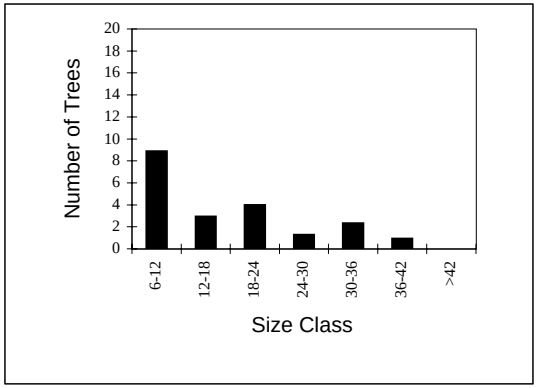
Zone 1 (0 to 30 feet)

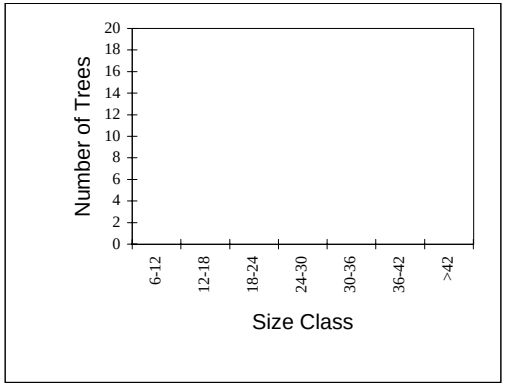
Zone 2 (30 to 100 feet)

Zone 3 (100 to 170 feet)

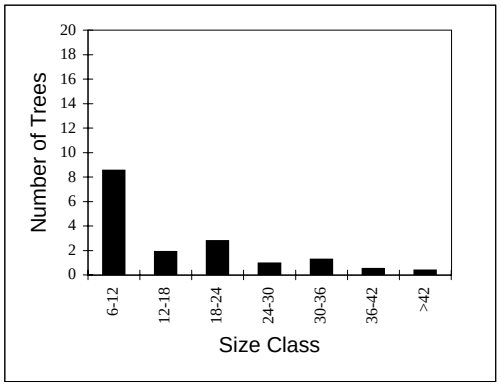
Alternatives 2 and 4[3/]

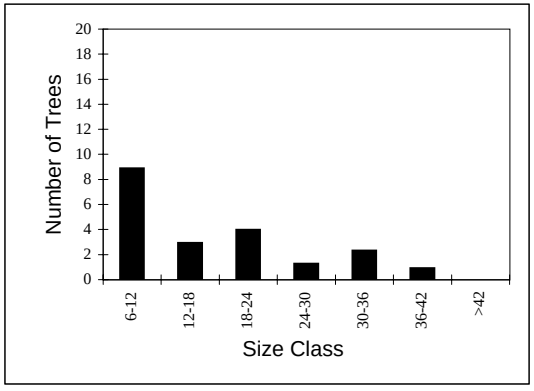






Alternatives 2 and 4[4/]





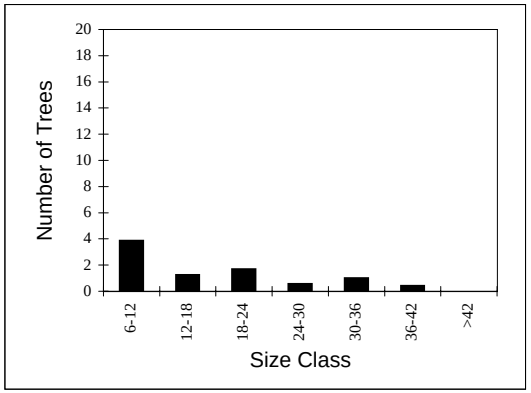


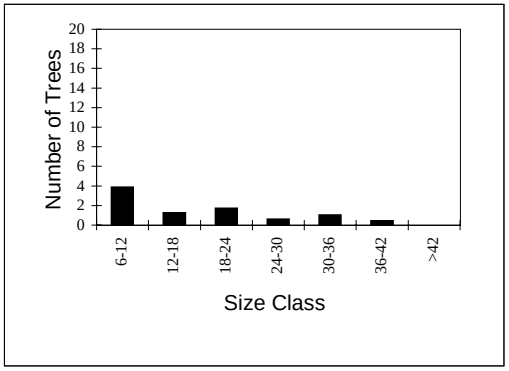
Figure J-1b. Number of Trees in Each Size Class within Bands 1, 2, and 3 Along a 100-foot Length of Class II Streams (Based on 60-Year-Old Managed Stand)

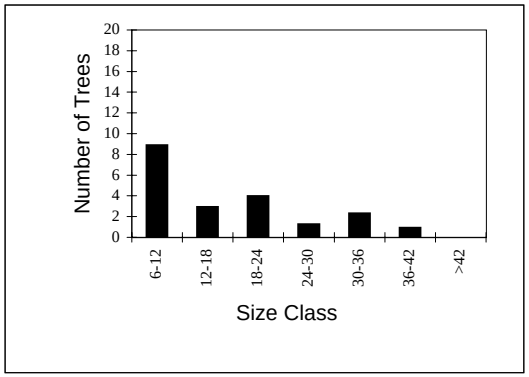
Zone 1 (0 to 30 feet)

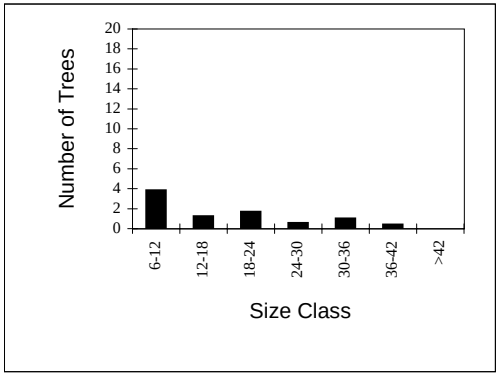
Zone 2 (30 to 100 feet)

Zone 3 (100 to 170 feet)

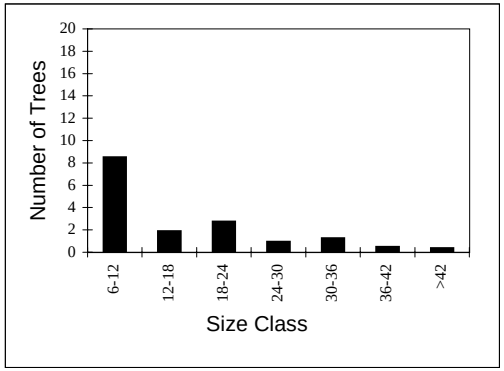
Alternatives 2 and 4[5/]

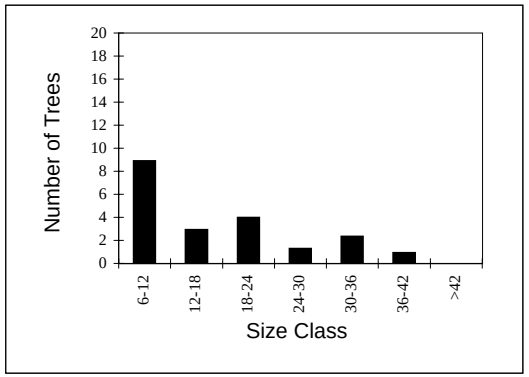






Alternatives 2 and 4[6/]





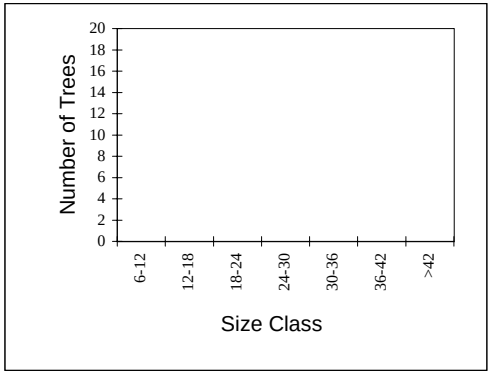


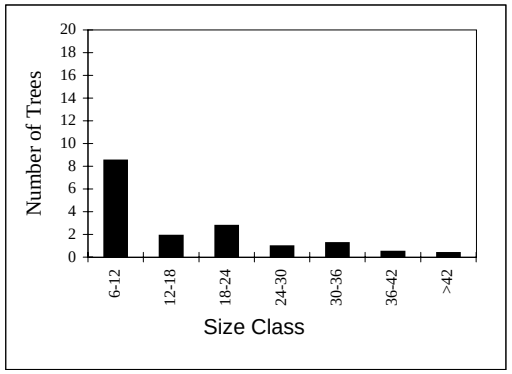
Figure J-1b. Number of Trees in Each Size Class within Bands 1, 2, and 3 Along a 100-foot Length of Class II Streams (Based on 60-Year-Old Managed Stand)

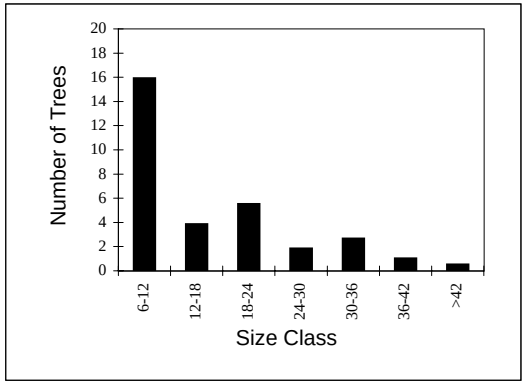
Zone 1 (0 to 30 feet)

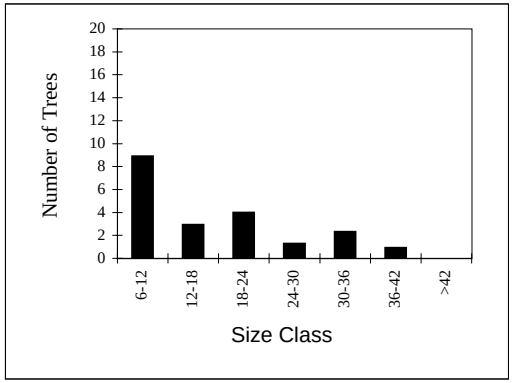
Zone 2 (30 to 100 feet)

Zone 3 (100 to 170 feet)

Alternative 3







1/ Modeled using the lower end of the 85 to 170 foot range of protection buffer widths for RMZs.
2/ Modeled using the upper end of the 85 to 170 foot range of protection buffer widths for RMZs.
3/ First 3 years of the HCP.
4/ 47 years of the HCP, outside of the Humbolt WAA, Douglas-fir timber type, and redwood forests with slopes >50% (no harvest in band 1, 240 sq. ft./ac HBA in band 2 and the first 30 feet of band 3, no restrictions for the remainder of band 3).
5/ 47 years of the HCP, outside of the Humbolt WAA, redwood timber types, slopes <50 percent (240 sq. ft./ac HBA in bands 1, 2, and the first 30 feet of band 3, no restrictions for the remainder of band 3).
6/ 47 years of the HCP, within the Humbolt WAA, Douglas-fir and redwood forest timber types, all slopes (Restricted Harvest in band 1, 240 sq. ft./ac HBA in band 2, no restrictions in band 3).